

Appln No. 09/991,199

Amdt date February 27, 2004

Reply to Office action of December 1, 2003

REMARKS/ARGUMENTS

Reconsideration of the application is respectfully requested. Currently claims 1-5, 6, 7, 17, 18 and 20 are pending in the application. Claims 6, 9-16 and 19 have been canceled. Claims 1, 4, 5, 7, 8, 17 and 18 have been amended.

The Examiner has made the Restriction Requirement final, because claim 1 does not read on the species of Figures 7 through 14. Applicant acknowledges this final requirement. The Examiner has requested that the non-elected claims 6-16 be canceled. These claims have either been canceled or amended to be consistent with the elected species.

The drawings have been objected to as not showing every feature of the invention specified in the claims. The objected to claim limitations have been canceled. Figures 1-3 have been objected to as requiring a "Prior Art" legend. Enclosed please find Figures 1-3 showing the requested legend in red ink for the Examiner's approval.

Claims 1-5 and 17-20 have been rejected under 35 U.S.C. §112 for being unclear as to how the shorting matrix electrically shorts the printed circuit board. This rejection is respectfully traversed. As clearly indicated in the Specification, beginning on page 5, line 32, it clearly recites that the scan test machine includes a shorting matrix which can be an upper layer of conductive and compliant material and may include a lower layer of conductive and compliant material sized to cover the upper and lower surfaces of the printed circuit board to be tested. Electrical current is introduced into the conductive layers which shorts out the circuits on the printed

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circuit board. In essence, electrical current is introduced into the shorting layer, which passes the electrical current into the printed circuit board being tested.

Claims 1-5 and 17-20 have been rejected as allegedly obvious over Kershner, et al. in view of Rathburn. It is respectfully submitted that the claims as amended are not obvious in view of the cited combination. The invention as recited in claim 1 is directed to a scan test apparatus for testing printed circuit boards comprising an upper housing and a lower housing, each having a first drive roller and second drive roller for movement of the printed circuit board with respect to the scan test apparatus, a shorting matrix for electrically shorting the printed circuit board positioned on at least one of the upper housing or the lower housing, and an electrical contactor positioned on at least one of the upper housing or the lower housing adjacent at least one of the leading edge of the shorting matrix or the trailing edge of the shorting matrix. The scan test apparatus transmits test signals through the electrical contactor to measurement electronics.

The Examiner indicates that Kershner, et al. includes a first drive roller considered to be a rotor 13 and a second drive roller considered to be gears 18. Claim 1 requires an upper housing and a lower housing each having first and second drive rollers for movement of the printed circuit board with respect to the scan test apparatus. Kershner, et al. does not have a motor and gears associated with each of the upper housing and the lower housing. In addition, the drive rollers move the printed circuit board with respect to the scan test apparatus.

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The motor 13 in Kershner is used to drive a conveyor belt 27 in the apparatus.

The Examiner has already recognized that Kershner, et al. does not disclose the claimed shorting matrix. Although Kershner, et al. does disclose the use of probes, they are not the claimed electrical contactor positioned on at least one of the upper housing or the lower housing adjacent at least one of the leading edge or the trailing edge of the shorting matrix. If there is no shorting matrix in Kershner, et al., there can be no contactor positioned adjacent at least one of the leading edge or the trailing edge of the shorting matrix as claimed.

Because Kershner discloses conventional prior art test fixtures and not the claimed scan test apparatus, the probes 47 are positioned in the fixture so that they correspond to test pad locations positioned throughout a surface of the printed circuit board. They are placed in this position, because the probe must contact the test pad locations on the surface of the printed circuit board when the fixture is compressed. Kershner, et al. is conventional test fixture technology. The present scan test apparatus scans the printed circuit board as it is moved passed the contactors, and hence the need for placing the contactors at least the leading or trailing edge of the shorting matrix.

Rathburn has been cited simply as allegedly disclosing a shorting matrix as a compliant material for retaining a printed circuit board to the housing. This is not the same as the claimed shorting matrix which is used to introduce electrical

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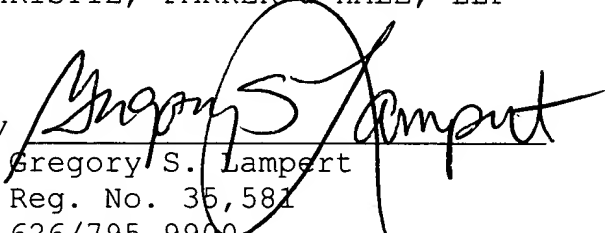
current into the unit under test. Consequently, the cited combination does not result in the claimed invention.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is now in condition for allowance, and accordingly, early indication thereof is respectfully requested.

Respectfully submitted,

CHRISTIE, PARKER & HALE, LLP

By


Gregory S. Lampert

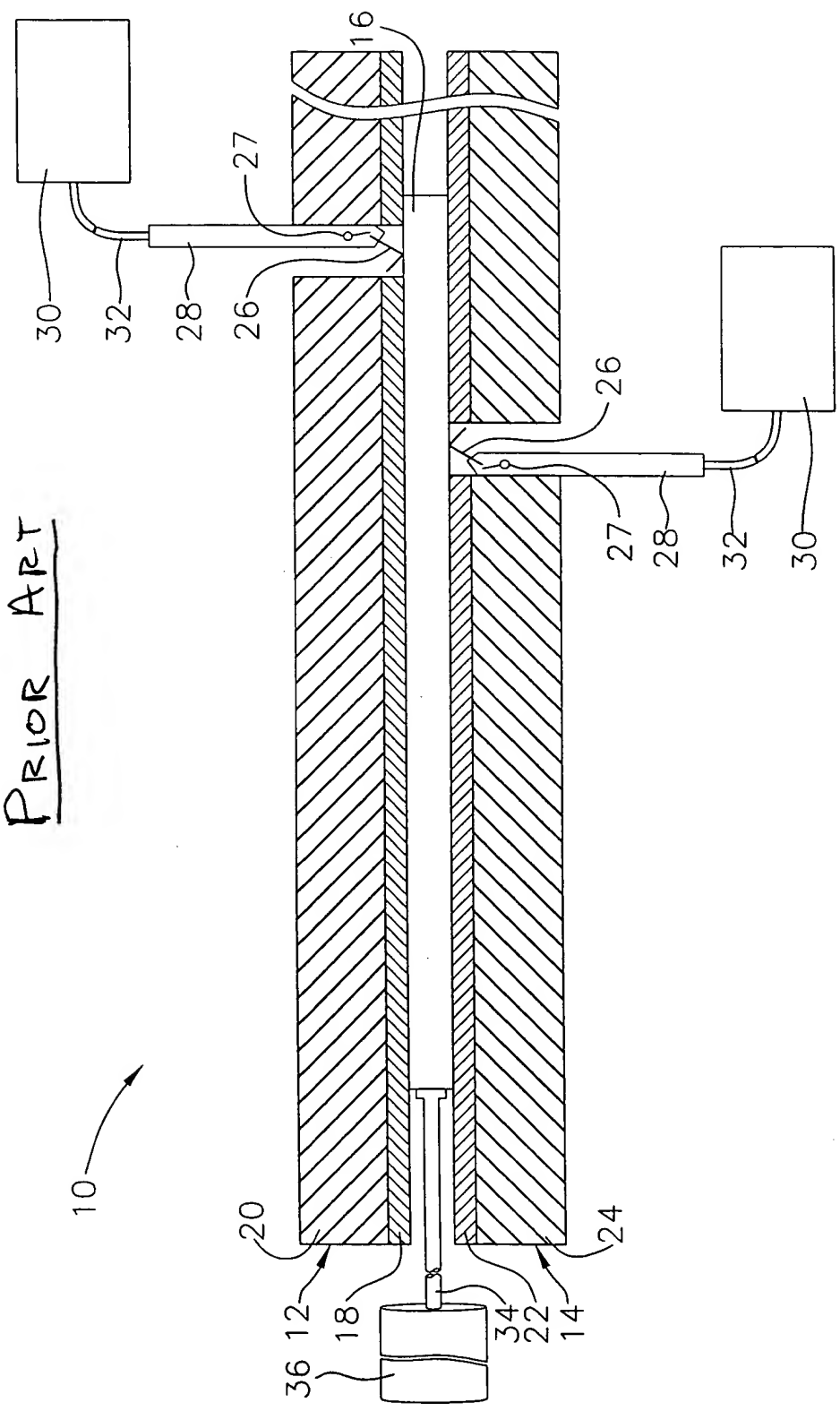
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FIG. 1
PRIOR ART



PRIOR ART

FIG. 2A

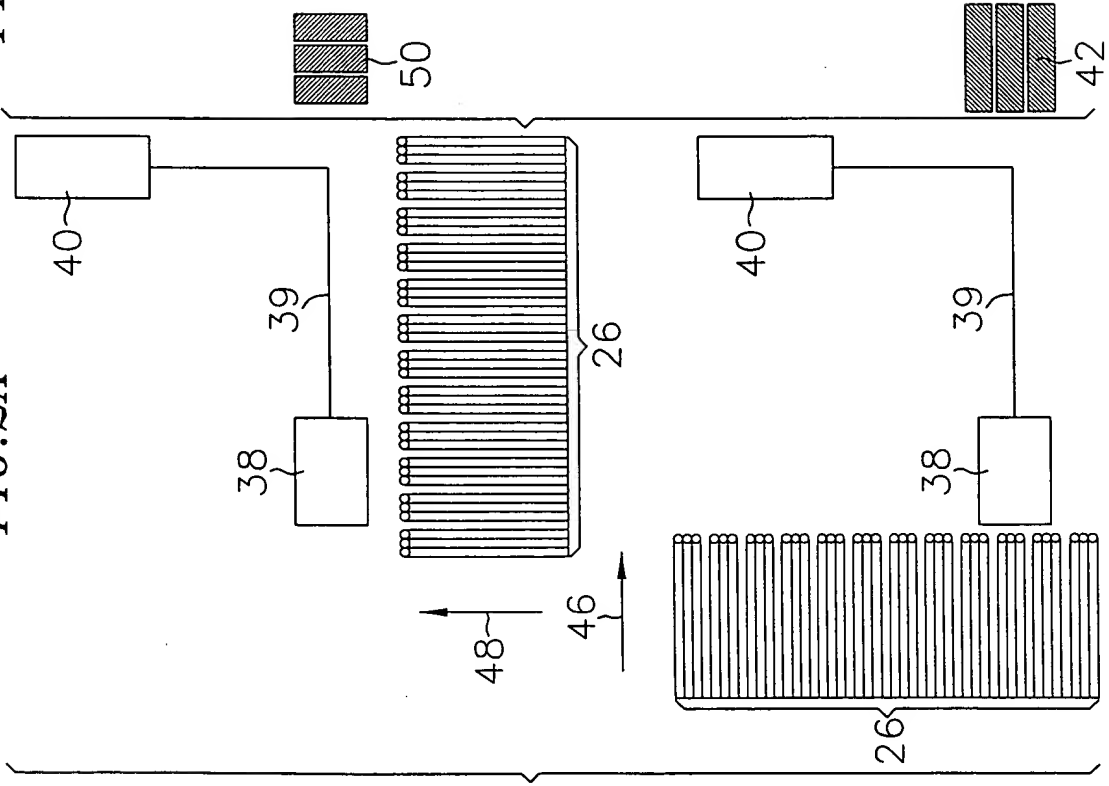


FIG. 2B

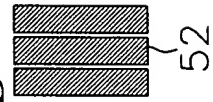


FIG. 2C FIG. 2D

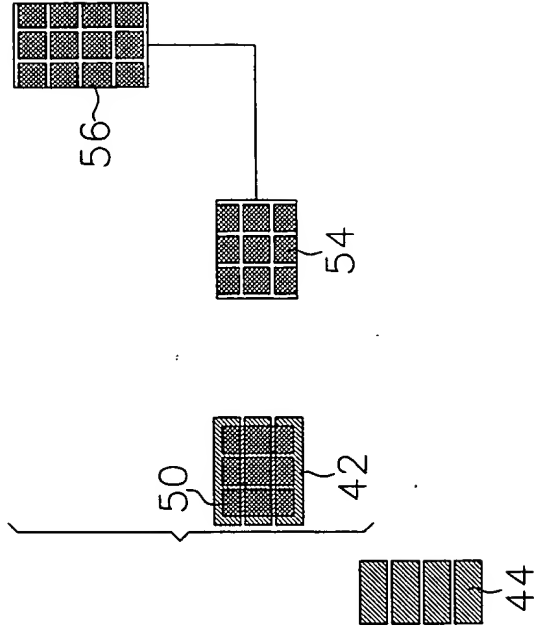




FIG. 3
PRIOR ART

